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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,181	02/13/2002	Shane Clifford	303.759US1	7264

21186 7590 09/29/2005		EXAMINER
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH		YIGDALL, MICHAEL J
1600 TCF TOWER		

ART UNIT	PAPER NUMBER
2192	

121 SOUTH EIGHT STREET
MINNEAPOLIS, MN 55402

DATE MAILED: 09/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/075,181	CLIFFORD, SHANE
	Examiner	**Art Unit**	
	Michael J. Yigdall	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *10 July 2005*.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-45* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-45* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *10 July 2005* is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   Responsive to Applicant's submission filed on July 10, 2005. Claims 1-45 are pending.

Response to Amendment

2.   The drawings filed on July 10, 2005 are not acceptable because they are not in compliance with 37 CFR 1.121(d). Each replacement sheet of drawings must be labeled "Replacement Sheet" in the header.

3.   The rejection of claims 1-16 under 35 U.S.C. 101 is withdrawn in view of Applicant's amendment.

4.   The rejection of claims 3, 4, 7, 8, 12-16, 20-24, 26, 27, 29, 30, 32, 33, 38, 39, 41 and 42 under 35 U.S.C. 112, second paragraph, is withdrawn in view of Applicant's amendment.

Response to Arguments

5.   Applicant's arguments have been fully considered but they are not persuasive.

Applicant contends that "a feature diagram is used at a high level to model concepts and concept features which are to be included in a system, rather than a system itself" (Applicant's remarks, page 11, fifth paragraph).

However, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The claims merely recite "feature diagrams" without further limitation. A plain and reasonable interpretation of a "feature diagram" is a diagram of features. The component

diagrams of Coad (see, for example, column 17, lines 37-42) are indeed diagrams of features

(such as components and interfaces) that model a system (see, for example, FIG. 18). Moreover,

it is noted that Applicant appears to refer to these component diagrams as "concept diagrams"

(Applicant's remarks, pages 11 and 12).

Applicant further contends that "modifying the feature diagram" and "making

modifications to the potential statechart that correspond to the modifications of the feature

diagram to produce a deterministic statechart" are "not taught by the concept diagram of Coad

because Coad provides that the architectural view, which includes the concept diagram, is static"

(Applicant's remarks, page 11, last paragraph).

However, the examiner disagrees with Applicant's characterizations. Coad discloses,

"The software development tool is collectively broken into three views of the application: the

static view, the dynamic view, and the functional view" (column 16, lines 58-60). Here, "static"

does not mean that the static view is never modified or cannot change. In fact, Coad expressly

discloses that "the software development tool simultaneously reflects any modifications to the

source code to both the display of the graphical representation as well as the textual display of

the source code" (column 4, lines 42-45). Thus, the textual representation is updated when the

graphical representation is modified, and the graphical representation is updated when the textual

representation is modified (see, for example, column 4, line 61 to column 5, line 3). The

"graphical representation" refers to the static, dynamic and functional views of the application.

Therefore, Coad does indeed teach modifying the graphical representation of the application,

including static views of the application such as the component diagrams.

Applicant further contends that Coad does not teach "generating computer executable code from one or more statecharts generated from one or more feature diagrams" and that "the concept diagrams of Coad are an end product of development instead of an intermediate product used to develop a product" (Applicant's remarks, page 12, third paragraph).

However, what Coad teaches is a software development tool that provides synchronized graphical and textual views of source code (see, for example, column 2, lines 43-52). The component diagrams and the other graphical representations are intermediate representations within the software development tool; the end product is the software that is developed with the software development tool. Coad expressly discloses, "The software project comprises the source code in at least one file that is compiled to form a sequence of instructions to be run by a data processing system" (column 5, lines 10-13). In other words, Coad discloses generating computer executable code. As illustrated in FIG. 2, the source code 202 is generated from the graphical representation 204 and vice versa. The graphical representations include statecharts (see, for example, column 17, lines 16-22) and activity diagrams or deterministic statecharts (see, for example, column 17, lines 25-32). The statecharts are updated when the feature diagram is modified. Therefore, Coad teaches generating computer executable code from one or more statecharts generated from one or more feature diagrams.

Furthermore, it should be noted that the component diagrams of Coad are merely one example of the graphical representations that correspond to the "feature diagrams" as recited in the plain language of the claims. The collaboration diagrams (see, for example, FIG. 15 and column 17, lines 8-15) and the use case diagrams (see, for example, FIG. 12 and column 16, lines 61-63) likewise model the features of the system.

Claim Objections

6.   Claim 12 (currently amended) is objected to because of the following informalities: The

claim recites "the feature models" rather than --the feature diagram models--. Appropriate

correction is required.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8.   Claims 9-45 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pat. No.

6,851,107 to Coad et al. (art of record, "Coad").

With respect to claim 9 (currently amended), Coad discloses a computerized method (see,

for example, the abstract), comprising:

(a) creating a feature diagram and a corresponding potential statechart (see, for example,

column 4, lines 38-45, which shows developing software by creating corresponding graphical

representations of the source code, and column 17, lines 16-22 and 37-42, which shows that the

graphical representations include statecharts and component diagrams, i.e. feature diagrams);

(b) modifying the feature diagram (see, for example, column 4, line 61 to column 5, line

3, which shows changing a graphical representation of the code); and

(c) making modifications to the potential statechart that correspond to the modifications

of the feature diagram to produce a deterministic statechart (see, for example, column 4, line 61

to column 5, line 3, which shows updating the graphical representations when changes are made

to the code, and column 17, lines 25-32, which shows an activity diagram, i.e. a deterministic

statechart).

With respect to claim 10 (currently amended), the rejection of claim 9 is incorporated,

and Coad also discloses the limitation wherein the potential statechart conforms to the Unified

Modeling Language (see, for example, column 15, lines 50-54).

With respect to claim 11 (currently amended), the rejection of claim 9 is incorporated,

and Coad also discloses the limitation wherein the deterministic statechart conforms to the

Unified Modeling Language (see, for example, column 15, lines 50-54).

With respect to claim 12 (currently amended), the rejection of claim 9 is incorporated,

and Coad also discloses the limitation wherein the feature models a real-time control system

(see, for example, column 1, lines 47-52).

With respect to claim 13 (currently amended), the rejection of claim 9 is incorporated,

and Coad also discloses the limitation wherein the feature diagram models a system for

controlling semiconductor equipment (see, for example, column 1, lines 47-52).

With respect to claim 14 (currently amended), the rejection of claim 9 is incorporated,

and Coad also discloses the limitation wherein computer-executable code is generated as a

function of the deterministic statechart (see, for example, column 5, lines 10-13).

With respect to claim 15 (currently amended), the rejection of claim 9 is incorporated, and Coad also discloses the limitation wherein computer-executable code for a real-time control system is generated as a function of the deterministic statechart (see, for example, column 5, lines 10-13, and column 1, lines 47-52).

With respect to claim 16 (currently amended), the rejection of claim 9 is incorporated, and Coad also discloses the limitation wherein computer-executable code for a system for controlling semiconductor equipment is generated as a function of the deterministic statechart (see, for example, column 5, lines 10-13, and column 1, lines 47-52).

With respect to claim 17 (original), the limitations recited in the claim correspond to the limitations recited in claim 9 (see the rejection of claim 9 above). Coad also discloses:

(d) generating computer-executable code from the deterministic statechart (see, for example, column 5, lines 10-13).

With respect to claim 18 (original), the limitations recited in the claim correspond to the limitations recited in claim 10 (see the rejection of claim 10 above).

With respect to claim 19 (original), the limitations recited in the claim correspond to the limitations recited in claim 11 (see the rejection of claim 11 above).

With respect to claim 20 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 12 (see the rejection of claim 12 above).

With respect to claim 21 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 13 (see the rejection of claim 13 above).

With respect to claim 22 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 14 (see the rejection of claim 14 above).

With respect to claim 23 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 15 (see the rejection of claim 15 above).

With respect to claim 24 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 16 (see the rejection of claim 16 above).

With respect to claim 25 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 17 (see the rejection of claim 17 above).

With respect to claim 26 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 15 (see the rejection of claim 15 above).

With respect to claim 27 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 16 (see the rejection of claim 16 above).

With respect to claim 28 (original), the limitations recited in the claim correspond to the limitations recited in claim 11 (see the rejection of claim 11 above).

With respect to claim 29 (original), the limitations recited in the claim correspond to the limitations recited in claim 12 (see the rejection of claim 12 above).

With respect to claim 30 (currently amended), the limitations recited in the claim
correspond to the limitations recited in claim 13 (see the rejection of claim 13 above).

With respect to claim 31 (original), Coad discloses a system useful for generating
computer-executable code (see, for example, column 5, lines 10-13), comprising:

(a) a repository having stored feature diagrams and corresponding potential statecharts
(see, for example, column 4, lines 38-45, which shows developing software by creating
corresponding graphical representations of the source code, and column 17, lines 16-22 and 37-
42, which shows that the graphical representations include statecharts and component diagrams,
i.e. feature diagrams; also see, for example, column 15, lines 61-64, which shows using existing
code, i.e. stored code); and

(b) an editor capable of making modifications to the stored feature diagrams and capable
of making modifications to the potential statecharts that correspond to modifications made to the
stored feature diagrams (see, for example, column 4, line 61 to column 5, line 3, which shows
changing a graphical representation of the code and updating the graphical representations when
changes are made to the code).

With respect to claim 32 (currently amended), the limitations recited in the claim
correspond to the limitations recited in claim 12 (see the rejection of claim 12 above).

With respect to claim 33 (currently amended), the limitations recited in the claim
correspond to the limitations recited in claim 13 (see the rejection of claim 13 above).

With respect to claim 34 (original), the limitations recited in the claim correspond to the limitations recited in claim 12 (see the rejection of claim 12 above).

With respect to claim 35 (original), the limitations recited in the claim correspond to the limitations recited in claim 13 (see the rejection of claim 13 above).

With respect to claim 36 (original), the limitations recited in the claim correspond to the limitations recited in claim 10 (see the rejection of claim 10 above).

With respect to claim 37 (original), the limitations recited in the claim correspond to the limitations recited in claim 31 (see the rejection of claim 31 above). Coad also discloses:

(d) a code generator for generating computer-executable code from deterministic statecharts (see, for example, column 5, lines 10-13).

With respect to claim 38 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 15 (see the rejection of claim 15 above).

With respect to claim 39 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 16 (see the rejection of claim 16 above).

With respect to claim 40 (original), the limitations recited in the claim correspond to the limitations recited in claims 10 and 11 (see the rejection of claims 10 and 11 above).

With respect to claim 41 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 12 (see the rejection of claim 12 above).

With respect to claim 42 (currently amended), the limitations recited in the claim

correspond to the limitations recited in claim 13 (see the rejection of claim 13 above).

With respect to claim 43 (original), the limitations recited in the claim correspond to the

limitations recited in claim 9 (see the rejection of claim 9 above).

With respect to claim 44 (original), the limitations recited in the claim correspond to the

limitations recited in claim 9 (see the rejection of claim 9 above).

With respect to claim 45 (original), the limitations recited in the claim correspond to the

limitations recited in claim 9 (see the rejection of claim 9 above).

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

10.   Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coad in view

of U.S. Pat. No. 6,179,490 to Pruitt ("Pruitt").

With respect to claim 1 (currently amended), Coad discloses a computerized method for

utilizing a feature diagram in the creation of a potential statechart (see, for example, column 4,

lines 38-45, which shows developing software by creating corresponding graphical

representations of the source code, and column 17, lines 16-22 and 37-42, which shows that the

graphical representations include statecharts and component diagrams, i.e. feature diagrams),

comprising:

(a) adding a state to the potential statechart for each state-type feature added to the

feature diagram (see, for example, column 4, line 61 to column 5, line 3, which shows updating

the graphical representations when changes are made to the code, and FIG. 16, which shows

states that are added to the statechart).

Although Coad discloses that the statecharts illustrate states and transitions (see, for

example, column 17, lines 16-22), including decision states (see, for example, FIG. 17 and

column 17, lines 25-32), Coad does not expressly disclose:

(b) for each added state-type feature that is an optional feature, adding a decision state to

the potential statechart that has a guarded transition to the added state and adding an else

transition;

(c) for each alternate relationship to be added to the feature diagram, adding a decision

state to the potential statechart and adding a guarded transition from the added decision state to

each of the states in the alternate relationship, wherein an else transition is added to the added

decision state if the features in the alternate relationship are optional; and

(d) for each or-relationship to be added to the feature diagram, adding a decision state to

the potential statechart for each state in the or-relationship, wherein each added decision state has

a guarded transition to one of the states in the or-relationship, and each decision state has an else

transition.

However, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to add the appropriate states to the statechart of Coad in a manner so as to

reflect the desired relationships.

Moreover, Pruitt discloses an analogous method for creating a flowchart to represent and

create a program (see, for example, column 1, lines 8-15). Programs created in this manner are

"structured" so as to improve the quality of the program (see, for example, column 2, lines 1-5).

Pruitt further discloses elements of the flowcharts, such as "if-then" and "if-then-else"

blocks for "optional" and "alternate" relationships (see, for example, FIGS. 2D and 2E), as in

parts (b) and (c) above, and "case" blocks for "or" relationships (see, for example, FIG. 2F), as in

part (d) above.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to supplement the method of Coad with such features as taught by Pruitt, so as to

create programs that are structured and therefore of improved quality.

With respect to claim 2 (currently amended), the rejection of claim 1 is incorporated, and

Coad also discloses the limitation wherein the potential statechart conforms to the Unified

Modeling Language (see, for example, column 15, lines 50-54).

With respect to claim 3 (currently amended), the rejection of claim 1 is incorporated, and

Coad also discloses the limitation wherein the feature diagram models a real-time control

systems (see, for example, column 1, lines 47-52).

With respect to claim 4 (currently amended), the rejection of claim 1 is incorporated, and Coad also discloses the limitation wherein the feature diagram models a system for controlling semiconductor equipment (see, for example, column 1, lines 47-52).

With respect to claim 5 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 1 (see the rejection of claim 1 above). Coad also discloses:

(e) adding transitions to the potential statechart, wherein the transitions are transitions that are triggered by a signal or stimulus (see, for example, column 17, lines 16-22, which shows transitions caused by stimuli).

With respect to claim 6 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 2 (see the rejection of claim 2 above).

With respect to claim 7 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 3 (see the rejection of claim 3 above).

With respect to claim 8 (currently amended), the limitations recited in the claim correspond to the limitations recited in claim 4 (see the rejection of claim 4 above).
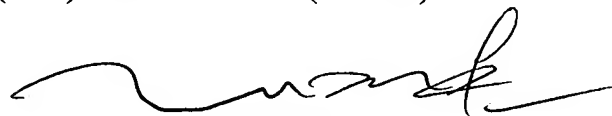
Conclusion

11.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

12.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Michael J. Yigdall whose telephone number is (571) 272-3707.

The examiner can normally be reached on Monday through Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TUAN DAM
SUPERVISORY PATENT EXAMINER

MY

Michael J. Yigdall
Examiner
Art Unit 2192

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